STATISTICAL BULLETIN
Metropolitan Life Insurance Co.

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INCREASING VIRULENCE OF SMALLPOX.

During 1922, the case-fatality rate of smallpox, or the number of deaths per 100 cases, was *five* times the figure for 1921! Among 9,936 cases reported in 276 cities in the United States and Canada, 495 deaths occurred, or five per cent. of the total cases. In 1921, only one per cent. of the 31,489 cases died. The decline in the number of cases may be only a casual circumstance; the lesson to be drawn from the records of the year is that smallpox in a virulent death-dealing form has entrenched itself in recent years among the American and Canadian populations. No one can now tell when, where, or to what extent this killing form of the disease will next make its appearance. The wide acceptance of the false teachings of the anti-vaccinationists and the indifference of the American population to the continued and vehement warnings of its public health officials have prepared tinder for what may well become a catastrophe of the first order. At last, we can see fairly clearly where the two national sins of tolerance of scientific error and of drift are leading us.

Interstate and intercity transportation afford ready means for the spread of virulent smallpox infection from the Western areas, where it has recently prevailed, to all other parts of the North American continent. In Kansas City, Missouri, the type of the prevailing disease resulted in death in 46 per cent. of the cases; in Kansas City, Kansas, in 42 per cent.; in Denver, Colorado, in 31 per cent., and in Moberly, Missouri, in 39 per cent. of the cases. Chicago showed a case-fatality rate of 16 per cent.; Tucson, Arizona, 20 per cent.; Muskegon, Michigan, 38 per cent., and Okmulgee, Oklahoma, a rate of 85 per cent. What is there to prevent the spread of this type of the disease to unprotected communities within easy and

frequent rail contact with these local areas? Only the wholesale vaccination of unprotected populations.

In the following table we show the facts reported to us by health officials and registrars of 276 cities in the United States and Canada:

Smallpox Cases and Deaths, American and Canadian Cities, 1920 to 1922.

Area	Cases			Deaths			Deaths per 100 Cases		
	1922	1921	1920	1922	1921	1920	1922	1921	1920
Total Cities (276)*	9,936	31,489	35,146	495	313	204	5.0	1.0	.6
In United States (247)	9,533	30,026	32,593	492	310	188	5.2	1.0	.6
In Canada (29)	403	1,463	2,553	3	3	16	.7	.2	.6
Special Cities	2,844	7,289	6,920	477	247	15	16.8	3.4	.2
Tucson, Ariz	233	45	6	46	0	0	19.7	0	0
Los Angeles, Calif	78	240	292	5	0	0	6.4	0	0
Denver, Colo	793	924	953	248	37	1	31.3	4.0	.1
Bridgeport, Conn	101	5	0	3	0	0	3.0	0	0
Chicago, Ill	96	246	154	15	4	1	15.6	1.6	.6
Kansas City, Kan	78	243	86	33	15	0	42.3	6.2	0
Lansing, Mich	1,227	4,512	4,818	17	12	11	1.4	.3	.2
Muskegon, Mich	24	17	31	9	0	0	37.5	0	0
Kansas City, Mo	136	943	514	63	160	2	46.3	17.0	.4
Moberly, Mo	28	63	66	11	4	0	39.3	6.3	0
Okmulgee, Okla	20	50	0	17	15	0	85.0	30.0	0
†Shawnee, Okla	30	1	0	10	0	0	33.3	0	0

*Total cities with complete reports for three years.
†Total for Shawnee, and for Pottawatomie County.

There is small comfort in the reduction in the number of smallpox cases from 31,489 in 1921 to 9,936 in 1922, when at the same time the actual number of deaths increased. This may be only a temporary lull preceding an outburst of a virulent type of the disease. The only certain protection for the whole of the American population is through effective vaccination in accordance with standards prescribed by the United States Public Health Service and by the state and municipal departments of health. Systematic vaccination of all children, and the re-vaccination of adults, will do much to prevent the further extension of smallpox in its present death-dealing form. Vaccination will save lives, prevent the permanent disfigurement and maiming of millions of our people, and the disruption of commercial and industrial affairs. The press and every other facility for teaching the lesson of last year's smallpox record should support the effort of

Federal, state and local officials to protect America from a threatened danger.

TYPHOID FEVER MORTALITY LOWEST IN 1922.

The lowest typhoid fever death rate ever recorded (5.6 per 100,000) occurred in 1922 among the millions of Metropolitan Industrial policyholders. As these insured persons comprise about one-seventh of the total population of the United States and Canada, there is every indication that a similarly favorable condition occurred in the general population of these two countries. In fact, a study recently made by the American Medical Association shows that to have been the case in the populations of the larger cities of the United States. The typhoid fever rate of 1922 was, among the policyholders, one-sixth lower than that for 1921, and was less than one-fourth as high as that registered in 1911. Had the typhoid fever death rate of 1911 (22.8 per 100,000) prevailed in 1922, there would have been 3,161 deaths among the wage earners of the two countries instead of the 779 that actually occurred.

The most favorable death rates from typhoid fever prevailed in the New England, Middle Atlantic and in the East North Central States. Not a single death from this disease occurred among policyholders in the State of Vermont and only three deaths occurred among the large number of policyholders in the District of Columbia. The States of Rhode Island, Massachusetts, New York, New Jersey, Delaware, all showed very favorable conditions. Very excellent rates are found also in some of the Western States, such as Wisconsin and Minnesota, where no deaths were recorded, and Michigan, Iowa, Missouri, Illinois, Montana, Utah, and in the three states of the Pacific Coast.

The problem of excessive typhoid fever prevalence is now limited, in the main, to the southern and the central regions of the United States and to two eastern provinces of Canada. The table on page 4 shows the death rates for the several states and provinces. Special note should be made of the very high figures still recorded in South Carolina, Florida, Tennessee, Arkansas, Oklahoma, Idaho and Colorado.

Death Rates per 100,000 for Typhoid Fever, by States and Provinces, Metropolitan Life Insurance Company. Industrial Department, Premium Paying Business, 1922.

Geographic Division	Death Rates per 100,000	Geographic Division	Death Rates per 100,000
Total Company	5.6	South Atlantic (*Cont.*)	
		Georgia	17.6
United States:	5.3	Florida	28.5
New England		East South Central	
Maine	6.7	Kentucky	15.1
New Hampshire	7.3	Tennessee	21.6
Vermont	0.0	Alabama	4.6
Massachusetts	1.5	Mississippi	....
Rhode Island	1.9	West South Central	
Connecticut	4.7	Arkansas	23.3
Middle Atlantic		Louisiana	8.4
New York	2.2	Oklahoma	30.5
New Jersey	3.7	Mountain	
Pennsylvania	4.3	Montana	3.1
East North Central		Idaho	31.7
Ohio	5.3	Colorado	18.2
Indiana	7.7	Utah	1.9
Illinois	3.4	Pacific	
Michigan	6.3	Washington	2.9
Wisconsin	....	Oregon	2.3
West North Central		California	5.2
Minnesota	....		
Iowa	4.1		
Missouri	5.8	Canada	10.5
Nebraska	15.8	Eastern Provinces	
Kansas	16.1	Nova Scotia	6.8
South Atlantic		New Brunswick	13.6
Delaware	3.0	Quebec	16.0
Maryland	5.4	Ontario	5.2
Dist. of Columbia	2.3	Prairie Provinces	
Virginia	9.9	Manitoba	3.2
West Virginia	11.6	Saskatchewan	5.8
North Carolina	11.6	Alberta	9.3
South Carolina	24.9	British Columbia	5.0

Conditions in Canada are as variable as in the United States. Some of the well settled provinces, such as Ontario and British Columbia, have rates as favorable as those in most American States. The Province of Quebec, on the other hand, has a high rate of 16.0, which recalls some of the rates found in the rural sections of Southern United States.

Further reduction in the number of typhoid fever deaths is entirely possible, provided a more intensive campaign is conducted in those states which still have high death rates from this disease. Everywhere there is evidence of growing control over this condition,

although some localities improve more slowly than others. More emphasis must be placed on rural sanitation and especially in the South and the Southwest. In these areas, much encouragement should come from the demonstration made by some of the rural states that have attained excellent results. They should keep in mind that in such eminently rural states as Wisconsin and Minnesota, not a single death of a Metropolitan Industrial policyholder occurred from typhoid fever in 1922. A little more effort exerted during the next ten years in those areas which we have mentioned should result in bringing about as great an improvement in the typhoid fever death rate as during the last decade. The mortality from typhoid fever can and should be brought down to a point where it is almost negligible.

GEOGRAPHICAL DISTRIBUTION OF SUICIDE AMONG WAGE-EARNERS.

The records of the Metropolitan Life Insurance Company present an opportunity to determine the extent of suicide in the industrial population living in the cities of the United States. In 1922, the rate of suicide mortality was 7.4 per 100,000 Industrial policyholders, a figure only slightly lower than for the preceding year. While 1922 figures for the general population of the United States are not available at this time, those for prior years have shown, without exception, that suicides are much more numerous in the population as a whole than among the wage-earning group. The difference in the rates, on further consideration, becomes even greater in favor of the industrial workers. Suicide is much more prevalent among city dwellers than in the rural population, and the Industrially insured are almost all city dwellers. When comparisons are made between suicide rates of insured wage-earners and suicide figures for the *urban* population in general, the contrast in favor of the former is more marked than ever. The relatively low rate among workers confirms the well known fact that self-destruction is more prevalent among those engaged in intellectual pursuits and those who are better circumstanced economically.

Yet the figures for the insured, low as they are, are interesting, especially when considered in relation to geographical differences. The table on page 6 presents the rates for suicides per 100,000 policyholders in the United States and the Provinces of Canada.

Death Rates per 100,000 for Suicide, by States and Provinces Metropolitan Life Insurance Company. Industrial Department, Premium Paying Business, 1922.

Geographic Division	Death Rate per 100,000	Geographic Division	Death Rate per 100,000
Total Company	7.4	South Atlantic (*Cont.*)	
		Georgia	10.4
United States:	7.8	Florida	17.1
New England		East South Central	
Maine	5.9	Kentucky	8.1
New Hampshire	2.4	Tennessee	5.1
Vermont	3.5	Alabama	5.8
Massachusetts	4.6	Mississippi	13.5
Rhode Island	8.4	West South Central	
Connecticut	6.3	Arkansas	2.1
Middle Atlantic		Louisiana	8.4
New York	8.1	Oklahoma	19.4
New Jersey	9.2	Mountain	
Pennsylvania	8.7	Montana	9.4
East North Central		Colorado	9.1
Ohio	6.7	New Mexico	....
Indiana	11.8	Arizona	....
Illinois	7.0	Utah	5.7
Michigan	7.8	Pacific	
Wisconsin	6.3	Washington	8.7
West North Central		Oregon	7.0
Minnesota	10.2	California	8.8
Iowa	9.2		
Missouri	9.9	Canada	2.6
Nebraska	13.6	Eastern Provinces	
Kansas	4.7	Nova Scotia	....
South Atlantic		New Brunswick	3.4
Delaware	3.0	Quebec	1.4
Maryland	14.4	Ontario	4.0
Dist. of Columbia	5.3	Prairie Provinces	
Virginia	3.8	Manitoba	....
West Virginia	2.9	Saskatchewan	5.8
North Carolina	5.4	Alberta	9.3
South Carolina	5.3	British Columbia	2.5

Most of the states with the outstandingly high suicide rates are in the West, South and Southwest. Thus, Oklahoma shows the highest rate of any of the states, namely, 19.4 per 100,000. The nearby State of Louisiana, likewise, has a rate above the average, as has also the State of Missouri. On the other hand, Kansas, adjoining Oklahoma on the north, has one of the low rates in the series. In two of the three Pacific Coast States, California and Washington, the suicide mortality is above average. Surprisingly high figures for suicide are in evidence among wage-earners in Florida, Georgia and Maryland.

Relatively low rates prevail in the New England States. Only Rhode Island, of the six, showed a rate in 1922 in excess of the general average of the country. All of the three Middle Atlantic States, and Indiana and Minnesota, as well as Nebraska, in the East and West North Central States showed appreciably higher rates than the average.

DECLINE IN MORTALITY GREATEST DURING SUMMER SEASON.

The most pronounced decline in the death rate during the past ten years occurred during the summer months. Between 1913 and 1922, for Industrial policyholders of the Metropolitan Life Insurance Company, the death rate in the months of July, August and September declined 30.3 per cent. The spring and autumn seasons are next in importance, with a decline of 26.4 per cent. in the death rate. The least drop in the death rate was recorded during the winter season, January to March.

The causes of death which are responsible for the greater rate of decline during the summer than in the other three seasons were, first of all, tuberculosis, then diarrhea and enteritis, diseases of the heart, chronic nephritis, cerebral hemorrhage, and typhoid fever. It is of singular interest, also, that the summer months, July, August and September, show not only the greatest rate of decline in mortality during the past ten years, but they also register the minimum mortality rates of the year. It is significant that the greatest improvement should be achieved when the mortality is lowest. The decline of mortality at this season of the year registers, perhaps, more decisively the effect of public health work than does the decline in the other seasons, when such other factors as low temperature and humidity play an important part in determining the death rate.

In the table on page 8 we show the death rate in each quarter of the year for the period 1913 to 1922.

Death Rates Per 1,000. All Causes of Death by Quarters of the Year, 1911 to 1922. Metropolitan Life Insurance Company. Industrial Department.

Quarter of year	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	Per cent. decline 1922 since 1913
TOTAL YEAR.....	8.8	8.7	9.9	10.6	15.6	11.6	11.7	11.3	11.5	12.0	26.7
1st quarter.....	10.0	9.7	13.9	15.5	12.3	13.7	13.7	12.4	12.7	13.5	25.9
2d quarter.....	9.2	9.0	9.9	10.1	11.8	12.3	11.6	11.9	12.4	12.5	26.4
3d quarter.....	7.6	7.8	7.9	8.2	9.7	10.1	10.7	10.1	10.3	10.9	30.3
4th quarter.....	8.1	8.3	8.3	8.4	28.3	10.5	10.8	10.9	10.7	11.0	26.4

HEALTH RECORD FOR MARCH, 1923.

The death rate of the Industrial policyholders for March (12.0 per 1,000), showed the usual seasonal increase as compared with the February figure (11.5). March was, nevertheless, the first month this year to record a lower death rate than that for a corresponding month of 1922. This is an exceedingly favorable development following as it does the considerable excesses that were in evidence this year for January and February.

Deaths from influenza and pneumonia continued to be reported in March in large numbers. The rate for the former showed an increase of eleven per cent. over the February figure; but this was accompanied by a decline in the mortality from pneumonia. The influenza epidemic of 1923 has now definitely passed its peak. This applies to all sections of the country as is definitely shown by reports relating to this Company's Industrial policyholders received during the early weeks of April.

The most encouraging single item in the March health record relates to tuberculosis. It is gratifying to be able to report that in March the tuberculosis death rate of the Industrial policyholders of the Metropolitan Life Insurance Company was only 124.2 per 100,000 as compared with 132.5 for March of last year. In January and February of this year higher death rates for this disease were observed than for the first two months of last year; and it was feared that the continuous decline in the death rate that has been observed in recent years might be destined for a check in 1923. It now appears that this unsatisfactory situation was only temporary and that the relatively high tuberculosis mortality of the first two months was probably only

incidental to the 1923 influenza epidemic, as influenza generally operates to hasten the deaths of tuberculous persons. The indications are, therefore, good that 1923 will show a continued drop in the mortality from tuberculosis.

The March rate for every one of the numerically important causes of death, save influenza, was lower this year than last. So, also, was that for every cause listed in the table on page eleven with the exception of typhoid fever, measles, whooping-cough and accidents. Even automobile accidents displayed a reduction for March. But not much significance attaches to this as it may doubtless be ascribed to more generally unfavorable weather conditions than prevailed in March of last year. The auto fatality rate was so much higher in January and February than in those months of 1922 that the record for the first quarter will show an increase over last year's very high figure.

The death rate for the general population of the large cities of the United States in March was 16.3 per 100,000 population as compared with 17.4 in February and 16.4 in March, 1922. The disease prevalence situation was much improved in March.

There was unusual prevalence of measles in almost every section of the country. Conspicuous examples of this are Alabama, Arkansas and Maryland where the number of case reports rose very appreciably. In Goldsboro, North Carolina, 135 cases occurred during a single week. Columbus, Ohio, has had a serious outbreak with 42 case reports during the first three days of March. Whooping-cough also shows generally increasing case prevalence.

Influenza is no longer causing anxiety. The number of cases dropped sharply in March. A few isolated outbreaks occurred during the month.

Scarlet fever also was, in general, less prevalent in March. There were, nevertheless, a few outbreaks of the disease, the most notable of which was at Wellesley College in Massachusetts, where a partial quarantine was established as a result of several cases among the students and servants. It was necessary to close the Friends' High School and the Friends' Academy at Morristown, New Jersey, on account of the presence of scarlet fever. The incidence of diphtheria appears to be declining.

Smallpox was less prevalent last month. Important declines in case incidence are reported from Illinois, Michigan and Minnesota. There were increases, however, in Louisiana and Texas. Prompt quarantine measures were employed in several places where smallpox

cases were discovered, notably Castalia, Ohio, where 200 school children were vaccinated, and in Rock Island, Illinois, where orders were issued to vaccinate every school child within ten days after the discovery of smallpox. In Salt Lake City and in Denver, during February there were outbreaks of a very virulent type of this disease. The case fatality rate was high, namely, ten deaths out of twenty-three cases in Salt Lake City and four deaths out of thirteen cases in Denver. The California State Board of Health urged the necessity of immediate vaccination of all unvaccinated persons in the state in order that virulent smallpox be barred therefrom.

In Covington, Kentucky, there has been a typhoid outbreak due to impure condition of hydrant water; from the first of the year to the week ended March 25th, thirty-one cases were reported.

Among the important health activities noted during the month may be mentioned the request of the Washington State Board of Health that the Legislture appropriate $8,000 for a survey of the Yakima Valley in which there has been unusual prevalence of typhoid fever and enterocolitis. In Chicago, physicians were notified that on and after April 1st the Vital Statistics Bureau would refuse to issue burial permits for persons reported as having died of tuberculosis who had not been previously reported as sick with that disease.

The table below shows the mortality among Industrial policyholders for March, 1923, February, 1923, March, 1922, and for the year 1922:

METROPOLITAN LIFE INSURANCE COMPANY.

Death Rates per 100,000 for Principal Causes, Premium-Paying Business in Industrial Department.

(Annual Basis)

MONTHS OF FEBRUARY AND MARCH, 1923, AND OF MARCH, 1922

CAUSES OF DEATH	RATE PER 100,000 LIVES EXPOSED			
	Mar., 1923	Feb., 1923	Mar., 1922	Year 1922†
TOTAL—ALL CAUSES	1199.4	1148.7	1222.0	877.2
Typhoid fever	3.3	2.8	3.2	5.6
Measles	13.6	10.6	5.4	4.3
Scarlet fever	6.9	4.4	7.0	4.8
Whooping cough	7.3	6.4	4.0	2.6
Diphtheria	18.2	17.3	20.1	17.8
Influenza	100.4	90.2	74.6	21.5
Tuberculosis (all forms)	124.2	119.1	132.5	113.4
Tuberculosis of resp'y system	114.8	109.8	122.7	102.9
Cancer	74.2	70.0	80.3	71.5
Diabetes mellitus	22.0	21.9	*	17.0
Cerebral hemorrhage	72.9	73.3	80.0	62.4
Organic diseases of heart	174.6	169.3	177.6	126.0
Pneumonia (all forms)	164.3	168.1	167.5	73.3
Other respiratory diseases	23.8	22.3	24.1	13.6
Diarrhea and enteritis	5.2	5.9	7.6	10.7
Bright's disease (chronic nephritis)	88.2	84.0	92.4	69.9
Puerperal state	19.1	19.0	23.8	18.9
Suicides	7.0	5.5	7.7	7.4
Homicides	5.9	5.1	6.1	6.2
Other external causes (excluding suicides and homicides)	54.6	52.0	52.4	57.7
Traumatism by automobile	7.8	9.4	8.8	13.5
All other causes	213.7	201.6	255.6	172.6

*Not available. †Based on provisional estimate of lives exposed to risk in 1922.

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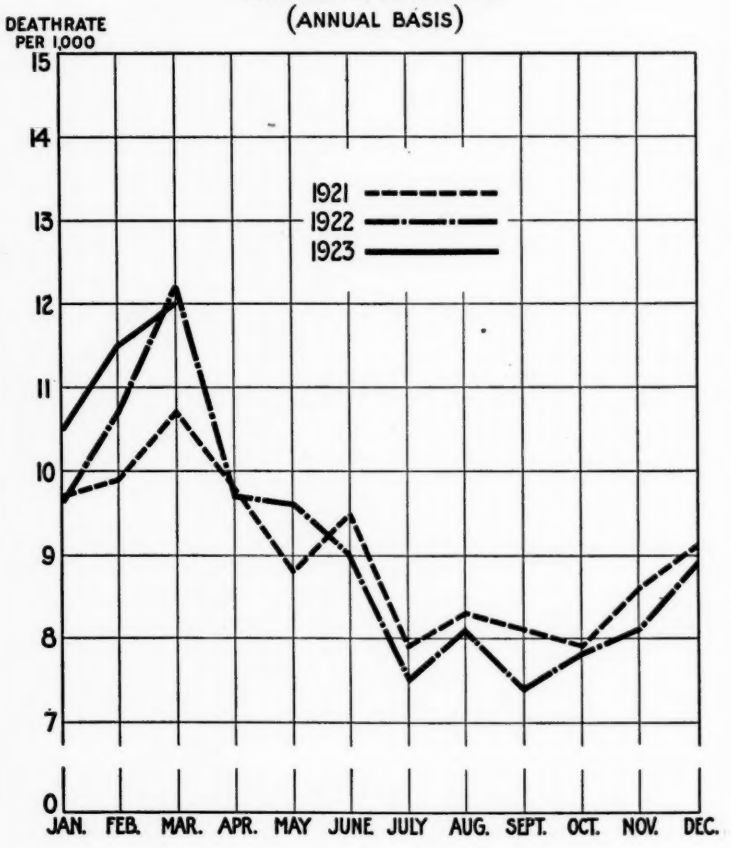
DEATHRATE PER 1,000 *in* SPECIFIED MONTHS *of* 1921-1922-1923

METROPOLITAN LIFE INSURANCE COMPANY
INDUSTRIAL DEPARTMENT
(ANNUAL BASIS)



	1921	1922	1923
JAN.	9.7	9.6	10.5
FEB.	9.9	10.7	11.5
MAR.	10.7	12.2	12.0
APR.	9.8	9.7	
MAY	8.8	9.6	
JUNE	9.5	9.0	

	1921	1922	1923
JULY	7.9	7.5	
AUG.	8.3	8.1	
SEPT.	8.1	7.4	
OCT.	7.9	7.8	
NOV.	8.6	8.1	
DEC.	9.1	8.9	

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